
Space Weather Forecast

Issued on Friday, 01 March 2024 at 01:25 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales <https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales>

Space Weather Forecast Headline: Ongoing risk of Moderate or Strong flares from the large sunspot in the northwest.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Activity has been Low during the last 24 hours, with the largest event a moderately sized Common-class flare from the large sunspot in the northwest. There are seven sunspot regions on the disc. The largest and most significant potential flare source remains the large region in the northwest, with a complex magnetic structure and significant flare potential. The other regions are smaller, and generally simpler and most are stable or decaying. However, two regions have developed over the past 24 hours, in particular a region in the western hemisphere which has increased to become moderately sized and magnetically complex. A southward directed Coronal Mass Ejection (CME) from the south of the disk has been analysed and is not expected to be Earth directed.

Solar Wind / Geomagnetic Activity: Solar winds generally varied between 380-420 km/s, with a predominantly gradually declining trend. The magnetic field was weak throughout, with the important north-south component also varying weakly. Geomagnetic activity was Quiet.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) remained at background levels with no radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Low to Moderate activity is expected with isolated Moderate-class flares likely. There remains a slight chance of Strong flares from the large sunspot in the northwest throughout, although through days 3 and 4 (3rd and 4th) this risk diminishes as the region rotates behind the west limb.

Solar Wind / Geomagnetic Activity: There are three recent CMEs which are all most likely to miss Earth, but with a risk of some glancing influence either late tomorrow (2nd Mar), or more likely early Day 3 (3rd Mar). Solar winds may become slightly elevated in the near term, but otherwise no notable solar wind enhancements are expected in the absence of significant CME enhancement or coronal hole influence. Geomagnetic activity is therefore forecast to be mostly Quiet, perhaps increasing to give Unsettled to Active intervals with any CME influence on Days 2 and 3 (2nd and 3rd Mar), with a Slight Chance of an isolated Minor Geomagnetic storm interval.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is expected to persist at background levels, but with a slight chance of rising above the S1/Minor Radiation Storm threshold in response to any notable flares from the large sunspot in the northwest of the disc.

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Geomagnetic Storms:

Geo-Magnetic Storm	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability (Exceedance)			(%)	(%)	(%)	(%)
Minor or Moderate	G1 to G2	No	1	5	10	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability			(%)	(%)	(%)	(%)
Active	R1-R2 M Class	No	60	60	50	40
Very Active	R3 to R5 X	No	15	15	10	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms	Level (cm ⁻² sr ⁻¹ s ⁻¹)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability (Exceedance)			(%)	(%)	(%)	(%)
Active	≥ S1	No	15	15	10	5
Very Active	≥ S3 *	No	5	5	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = cm⁻²sr⁻¹s⁻¹)